DOCUMENT RESUME

ED 187 535 SE 030 752

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TITLE The Importance of the Health Education Role of the Environmentally Qualified Person: A Definition by Behavioural Learning Objectives.
PUB DATE Jun 77
NOTE 119p.; Ph.D. Dissertation. Contains occasional light and broken type.

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Behavioral Objectives; Career Development; *Cooperative Programs; *Curriculum Development; Doctoral Dissertations; *Environmental Education; *Health Education; *Program Development; Speech Communication

ABSTRACT

Presented is a dissertation that demonstrates the importance of health education in the satisfactory accomplishment of the tasks of an Environmental Health Officer (EHO) or others similarly engaged in the same field. The rationale supporting the argument for the inclusion of a course of health education in the training program of environmentally qualified persons is developed, together with an outline of some of the theories of communication, the communication of innovations, and the socio-behavioral determinants of compliance with health recommendations. A systems approach to a health education program and to a program of learning is also presented. The main body of the dissertation analyzes the tasks of an EHO in health education as integrated within his general duties, and develops, in the form of learning objectives, what the EHO should know in order to be able to carry out these tasks satisfactorily in the field. The learning objectives would form the basis for the course curriculum in question. (Author/CS)

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THE IMPORTANCE OF THE HEALTH EDUCATION ROLE OF THE ENVIRONMENTALLY QUALIFIED PERSON.

A DEFINITION BY BEHAVIOURAL LEARNING OBJECTIVES.

JUNE 1977.

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ACKNOWLEDGEMENTS.

The writer would like to express his gratitude to the following persons for their kind guidance in the planning of this dissertation:

MR. B. K. TONES - Course Director.

DR. D. CLARKE - Director, BLAT Centre for Health and Medical Education, Department of Audio Visual Communication, B.M.A.House, London.

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MR. L. NICKLIN - Chief Liaison Officer, Health Education Council, United Kingdom.

MR. J. WRIGHT - Environmental Health Officer responsible for Health Education, City of Leeds Council, Yorkshire.

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SECTION ONE.

CHAPTER 1. INTRODUCTION.

The aim of this dissertation is to demonstrate the importance of health education in the satisfactory accomplishment of the tasks of an Environmental Health Officer (EHO) or others similarly engaged in the same field.

The rationale supporting the argument for the inclusion of a course of health education in the training programme of environmentally qualified persons is developed, together with an outline of some of the theories of communication, the communication of innovations and the socio-behavioural determinants of compliance with Health Recommendations. A systems approach to a health education programme and to a programme of learning is also presented.

The main body of the dissertation analyses the tasks of an EHO in health education as integrated within his general duties, and develops, in the form of learning objectives, what the EHO should know in order to be able to carry out these tasks satisfactorily in the field. The learning objectives would form the basis for the course curriculum in question.

CHAPTER 2. THE RATIONALE FOR THE GREATER UTILISATION OF HEALTH EDUCATION IN ENVIRONMENTAL HEALTH WORK.

2.1. The Need for the Student EHO to learn Health Education.

It is contended in this dissertation that there is a need for a health education task orientated curriculum integrated into the general training programme of EHO's. In effect the approach used to solve the problems confronting EHO's in the field should be tri-axial. An 'engineering' aspect, together with a legislation enforcement function, both combined with an educational approach seeking to change the public's environemtnal health behaviour, would seem to be the most likely to achieve long-term results. The EHO would then need to learn the most important aspects of health education, just as he learns the core material to enable him to function in the other two approaches.

The health education content of the EHO's training programme should:-

a) Answer the demand of the EHO in both rural and urban areas in equipping him with the skills necessary to change human behaviour to promote healthful practices in such areas as food hygiene, housing control, accident prevention, noise control, vector control, pollution control and communicable disease control.

b) Slot into modern technological, behavioural and scientific development.

c) Produce EHO's who are capable of caring and of helping individuals and groups and especially in aiding them in the identification and the coping measures applicable with regard to their own health needs in terms of the environment.

2.2. Empirical Findings amongst Practicing EHO's.

There is no better way for assessing the need for curriculum up-dating and change than an evaluation of the effectiveness with which a body of workers perform their tasks in the field. However, in multi-disciplinary areas such as environmental health this is particularly complicated and difficult to do. Of particular interest to this dissertation is an empirical study carried out in 1974 (SINGLETON, R.J. 1974), where a postal survey was carried out amongst a representative sample of EHO's working in England and Wales. This body of persons being of particular importance to the organisation and execution of environmental health in the United Kingdom, as since the re-organisation of Local Government in that country in 1973, they have assumed full responsibility in the municipalities for this work. The evaluation of their views concerning the importance of health education to their role thus carries considerable weight.

The aims of the study as given by Singleton were:-

a) To measure, reasonably accurately, the EHO's perception of his educational role and function.

b) To estimate the nature and extent of the EHO's educational training needs, both present and future.

c) To estimate the role of the United Kingdom Area Health Authority (Government body employing professional Health Education Officers in the United Kingdom) in relation to Municipal Environmental Health Departments.

A random sample from the Environmental Health Officer's Association Register was taken, and two hundred and eighty nine replies were received, being 72.25% of the questionnaires sent out.

The main strands of the results of interest to this dissertation which

emerged from the data were as follows:-

a) 36.68% of the respondents said health education was involved a little in their work at the present time, but 91.64% thought that health education should be involved in their work either a great deal or quite a lot more.

b) 51.10% of the respondents indicated that their training did not fit them very well for practising education, and 64.34% had not attended post-graduate courses in which educational theory and techniques had been included. 72.95% stated that if it were possible they would take advantage of short post-graduate courses in health education.

c) 52.30% of the respondents did not know whether or not there was a Health Education Unit in their own area, and 61.62% stated that they had never consulted the Health Education Unit of their Area Health Authority in support of their routine work.

2.3. An Analysis of an Environmental Problem where the solution lies with Health Education.

In order to demonstrate the level of handicap that exists in the professional skills of an EHO when he is called upon to solve a specific problem involving behavioural change, it is necessary to analyse a hypothetical situation. If this problem is taken from the field of food hygiene, one of the major areas of environmental health work, the following might arise.

An outbreak of food poisoning in a community has been traced by efficient epidemiological techniques to the consumption of pork pies manufactured at a specific factory. The food workers at the factory are largely immigrant workers, and contamination of the pork pies can be attributed to an unhygienic mal practice of the staff after the pork pies have been cooked. The future production of uncontaminated products from this factory depends on a behavioural change by the food workers brought about through effective health education techniques employed by the EHO.

The lack of ability of the EHO to bring about this necessary change can be judged by the following analysis:-

OUTLINE OF KNOWLEDGE GLEANED BY THE EHO FROM HIS PRESENT CURRICULUM.

1. MICROBIOLOGY -

   - Growth and multiplication of micro-organisms.
   - Optimum conditions of growth.
   - Identification of organisms commonly causing food poisoning.
   - Toxin production.
   - Thermal death points.

2. Human infections caused by micro-organisms in food stuffs.

3. Epidemiology of food poisoning outbreaks including role played by carriers.

4. Inspection of food premises including design and layout.

5. Inspection of food stuffs to detect unsoundness.

6. Control of infestations in food premises.

7. Monitoring of bacterial and chemical quality of foodstuffs through sampling programmes.

8. Food legislation and its enforcement.

OUTLINE OF KNOWLEDGE REQUIRED BY THE EHO TO REMEDY UNHYGIENIC BEHAVIOURAL PATTERNS IN FOOD WORKERS.

1. Human behavioural studies to include:-

   - Socialisation, secondary socialisation and re-socialisation.
   - Culture, culture patterns and culture change.
   - Cultural environment.

   - Reinforcing behaviour.
   - Attitude change.
   - Dissonance.

2. Communication studies to include:-

   - Definition of the communication model.
   - Effective communication.
   - Symbolic, iconic and enactive channels.
   - Perception and misperception included limited channel capacity.
   - Feed back.
   - Homophilous and heterophilous sources.
   - Remembering and forgetting.
   - Measurement of communication effectiveness.
   - Use of learning resources to include audio-visual aids and the limitations of the effectiveness of posters.

3. A systematic approach to learning to include:-

   - Target groups.
   - Learning objectives.
   - Previous knowledge, attitudes and performance.
   - Evaluation and feed back.

CHAPTER 3. THE COMMUNICATION OF INNOVATIONS.

Communication is the process by which messages are transmitted from a source to a receiver. The purpose of communication has been defined as not just to deliver a message but to effect a change in the recipient in respect of his knowledge, his attitudes and eventually his behaviour (Fletcher C.M.) An innovation is an idea, practice, or object perceived as new by an individual, (Rogers and Shoemaker 1971). The communication of innovations therefore concerns the diffusion and adoption of new ideas, and as such will be perceived by environmentalists as vital to their work.

3.1. The Elements in the Diffusion of Innovations.

Rogers and Shoemaker, in their book to which reference has already been made state that the crucial elements in the diffusion of new ideas are, (a) the innovation; (b) the channel; (c) the time element, and; (d) the members of the social system who adopt (or reject) the innovation. It appears to matter little to the individual if the idea is not a new one, if it seems new to the individual it is an innovation. The new ideas in the environmental health context would all contain a material or physical aspect as well as the idea component.

The communication channel is the means by which the message gets from the source to the receiver (op.cit). The essence of the diffusion process of the innovation is human interaction by which one person communicates a new idea to one or several persons. At its simplest, this diffusion process could be the new idea, a person who has knowledge of the innovation, an individual who is not yet aware of the new idea and some type of communication channel connecting the two individuals. In everyday environmental health practice this could be, for example, the idea that meat products once cooked, should be refrigerated to prevent the production of toxins by certain contaminating bacteria (a fact long known, but new to the restaurant staff), the inspecting Environmental Health Officer, the food workers in the restaurant, and the face-to-face persuasion techniques used by the Environmental Health Officer to communicate this idea that permitted a two-way exchange of ideas and changed the workers' attitudes.

Time is an important consideration in the process of diffusion (op.cit).

The time dimension is involved during which the individual passes from first knowledge of the innovation to its adoption, or rejection, by him; in the earliness or lateness an individual adopts an innovation when compared with other members of his social system, and finally in the rate of adoption of the innovation in a social system, usually measured by the number of members of the system that adopt the innovation in a given period of time.

The mental process through which an individual passes from first knowledge of an innovation to a decision to adopt or reject, and to confirmation of this decision, is known as the innovation decision process (op.cit). Several researchers have conceptualised a cumulative series of five stages in process (i) from first knowledge; (ii) to interest usually shown by gaining further knowledge about the innovation; (iii) to evaluation by gaining a favourable or unfavourable attitude towards the innovation; (iv) to small trial; (v) to an adoption or rejection decision.

The social system is defined as a collectivity of units which are functionally differentiated and engaged in joint problem-solving with respect to common goals (op.cit). The social system analysed in a diffusion study may therefore consist of say, the inhabitants of a village, or the members of the restaurant staff given as an example earlier. The diffusion of the innovation and the social system are complexly inter-related. The social structure acts to impede or facilitate the rate of diffusion and adoption of new ideas through what are called "systems effects". "System effects" are defined as the influences of the systems social structure on the behaviour of the

individual members of the social system. Established behaviour patterns exist for the members of a social system and are referred to as "norms". Two ideal types of norms can be distinguished and are traditional and modern. A system with modern norms is more change orientated, technologically developed, scientific, rational and empathic whilst a traditional system, a village community in a developing country for example, is the opposite of this.

The different roles that individuals play in a social system, and the effect of these roles in the diffusion of the innovation throughout the system, are recognised as important influences on whether or not the innovation is adopted. Two roles are key ones in this process, they are those of opinion leaders and change agents. Opinion leadership is the degree to which an individual is able to informally influence other individuals' attitudes or overt behaviour in a desired way with relative frequency. A change agent is a professional who influences innovation-decisions in a direction deemed desirable by a change agency (op.cit.) Within the scope of these definitions the Environmental Health Officer will readily identify himself as a change agent in his professional field of activity, and the complex structure of legislation, administration and established practices etc., known today as environmental health, the change agency. The value of the role of opinion leaders will also become apparent and the Environmental Health Officer active in the educational aspects of his work will readily seek out these persons and where applicable work through them. However in so doing it is well to bear in mind that very often the most innovative member of a system is often perceived as a deviant from that system and is accorded a somewhat

dubious status of low credibility by the average member, and that opinion leadership is earned and maintained by the individual's technical competence, social accessibility and conformity to the system's norms. Furthermore, opinion leaders may be sought by, or may seek their followers. The London fishmonger who first took his fish off his exposed unhygienic marble slab, so doing away with the traditional display of which fishmongers were so proud, and putting them in a glass-fronted refrigerator, was an opion leader. His example was followed by the others in the interests of hygiene, and especially so when it was established that the sales did not fall off. The Environmental Health Officer's success was positively related to the extent that he had worked with the fishmonger opinion leader.

3.2. The Change Agent.

Most of the progressive change for the better in the field of environmental health has been brought about not as the result of haphazard phenomenon, but by planned premeditated action of change agents such as legislators and administrators, sanitary engineers, Environmental Health Officers, health educators and many others. It is important therefore, for Environmental Health Officers to understand their role as change agents, their relationships with clients and the various strategies of change they may employ to increase their chance of success in securing changes in the public's (their client's) behaviour that will bring about improved environmental health.

Rogers and Shoemaker in their previously quoted book, state that there is a sequence of seven roles in the process by which a change agent introduces an innovation to his clients:

(i) He must develop a perceived need for change. The Environmental Health Officer through his fieldwork will readily appreciate the frequent necessity to help his clients become aware of the need to alter their behaviour to reduce or eliminate health risks.

(ii) He must establish a change relationship. Again experience with the public will have shown the Environmental Health Officer how his work is made easier if he enhances his relationship with his clients by creating an impression of credibility, trustworthiness, and empathy with their situation and problems.

(iii) He must correctly diagnose the problem. Here technical training and professional competence plays an important role, but if the Environmental Health Officer wishes to succeed through the educational approach, he must view the situation empathically from his client's perspective and not his own and see

the situation through their eyes. An approach that is difficult, requiring a special effort especially as one of the Environmental Health Officer's functions is that of public health law enforcement.

(iv) He must create intent to change in his client. Here the Environmental Health Officer's role to motivate his clients to change after he has explored the various avenues of action his clients might take to achieve their goals. He must truly feel his role as an agent of behavioural change using techniques of persuasion, his approach supported by an appropriate professional training in health education.

(v) He must translate intent into action. The Environmental Health Officer works to promote compliance with the programme he advocates. He seeks to influence his client's behaviour in accordance with his recommendations which are based on the client's needs.

(vi) He must stabilise change and prevent discontinuances. New behaviour once achieved must be effectively stabilised by reinforcing messages thus "freezing" it. The pattern of routine and re-inspections in environmental health work would help to effectively bring this about.

(vii) He must achieve a terminal relationship. The Environmental Health Officer must seek to shift the clients from a position of reliance on himself and the advice and support he gives to reliance on themselves.

The question arises why some change agents are far more successful than others in introducing innovations. The following factors would appear important (op.cit.).

(i) Change agent effort. The willingness and interest the Environmental Health Officer shows in the educational side of his work related to the amount of time he can find from his many other professional duties.

(ii) Client-orientation rather than change agency orientation. Here the Environmental Health Officer might find himself expected to engage in certain behaviours by his Local Authority whilst at the same time he is expected by the public to carry on quite different actions. An example of this might be the expectancy of tenants to have their housing repaired through pressure brought to bear on landlords by the Environmental Health Officer through housing legislation, whilst the Local Authority would wish the houses demolished in an urban renewal programme. Change agent success has found to be positively related to client orientation rather than to change agency orientation.

(iii) Compatibility with clients' needs. It is essential for innovations to be client-orientated. In a developing country a rural population may wish, for example, public fountains in various locations in the village to diminish the distance water has to be carried from the communal well. The Environmental Health Officer might diagnose a latrine construction programme as a first health priority, and push ahead to encourage the villagers to build their own latrines. The poor co-operation of the villager in his programme might have been avoided if he had included at least the construction of one or two public water points in his planning.

(iv) Change Agent Empathy. The Environmental Health Officer must learn to some degree to put himself as it were in his

client's shoes and try to sense the reactions of his clients to his advice and to the environment. Change agent success is positively related to his empathy with his clients (op.cit). Environmental Health Officers who at one time found themselves in their client's role are probably better able to empathise with it.

(v) Homophily with his clients. Homophily is the degree to which the change agent is similar in certain attributes to his clients. The logic behind this theory is that communication between source and receiver is more effective when they are homophilous. The Environmental Health Officer who shares common interests and meanings with his clients is more likely to obtain success in communication effectively than if he did not share these attributes.

(vi) Utilisation of Opinion Leaders. The diffusion of new ideas is more likely to be successful if change agents identify and mobilise opinion leaders. Change agent success is positively related to the extent that he works through opinion leaders (op.cit). The Environmental Health Officer's duties are many and he can achieve economy of effort, and hasten the rate of diffusion, if he works through opinion leaders by communicating the innovation to a few and letting them spread the new ideas to the many.

(vii) Change agent credibility. Credibility is the degree to which a communication source or channel is perceived as trustworthy and competent by the receiver (op.cit). Where the client perceives that a change agent possesses relatively higher credibility than various other sources, he will be more receptive to messages from that change agent.

Credibility can come from formal legitimate authority and informal authority. An Environmental Health Officer represents formal legitimate authority, although he will not possess credibility in the medical matters as these belong to the medical doctor. The field of action of the Environmental Health Officer is interdisciplinary and often encompasses aspects of the work of other professions, thus he would be well-advised to carefully consider this aspect of his credibility in his client's eyes. Informal authority may be possessed amongst others by peer friends, parents and opinion leaders, those people who have given good advice in the past, possess charisma etc.

(viii) The client's evaluative ability. The change agent should seek to raise his client's technical competence and thus improve the client's ability to evaluate potential innovations. The unique contribution of the Environmental Health Officer to environmental health innovations is his technical competence. An example of this might be the installation of septic tanks in rural areas where the treatment process involved would be explained to clients, and the advantages outlined so that future maintenance would be undertaken by the clients when they had evaluated positively the innovation.

CHAPTER 4. COMMUNICATION - AN OUTLINE OF WHAT IS INVOLVED.

It is necessary to refer back to C. M. Fletcher's definition given in Chapter 3, and to consider what is involved in communication.

Effective communication will only have occurred when the message in the source's head is identical with the message in the audience's head. The only way for the source to know this is for him to receive "feed back" from the audience of the identical information that he has communicated.

4.1. Encoding the Message.

Several important processes are involved in the process of successful communication. If an example is taken of an Environmental Health Officer in face-to-face counselling with a food handler concerning the importance of frequent handwashing, the idea has to be encoded by the Environmental Health Officer, there must be a vehicle to carry the message and the message must be decoded correctly by the food handler. To encode the message in an efficient manner, the Environmental Health Officer must take into account the following features of the messages:-

a) Its cognitive mode (information/intellectual content) referring in the example to sites of pathogenic bacteria, multiplication of bacteria, symptoms of food poisoning etc.

b) Its affective mode (emotional/motivational - involving conveying to the food handler his responsibility to his clients in producing clean, wholesome food, the loss of trade and legal penalties if food poisoning is traced to his business etc.)

c) Its psycomotor mode (performance/skills referring to the correct method of handwashing, use of scrubbing brush, soap and hot water.

4.2. Conveying the Message.

The message, following its mode, may be, according to Bruner, J.S. and Goodman C.C. (1947) translated into one of the following channels for communication to the audience:

a) Symbolic (abstract/complex).

b) Iconic (pictorial/concrete - the use of visual aids).

c) Enactive (actually doing something).

A vehicle appropriate to the message must be selected to carry it to the audience. The Environmental Health Officer may simply use his voice, or use a film or slides as the vehicle to convey the message.

4.3. Decoding the Message.

The decoding of the message by the receiver is the next vital stage in communication. First it is important to consider communication failure where the message has not been received by the audience. This failure may be due to any one or a combination of three main causes. The first is the failure of the message to reach the audience's senses, and may simply be due to too low a volume of the voice, poor teaching resources etc. The second is the overloading of the channels of the audience's mind by too much information, or too complicated information. The third deals with the affective domain, where the message is unacceptable to the audience for emotional reasons, and will therefore be rejected or distorted. The process known as selective perception also plays a role here, the audience picks up what it wishes to know, and rejects information of an unpleasant or threatening kind.

Attention is vital in the correct decoding of the message, and vital to the learning process as without it learning is impossible. It is the process which selects from the barrage of information reaching the senses, it rejects irrelevant items and concentrates on the message being communicated. The relevant signals it selects are determined by both biological factors such as loud noises, movement, intensity etc., and the motivation and interest of the receiver which is an individual factor and therefore varies from person to person. The mechanism of attention is a device for limiting sensory input and either selects relevant stimuli or 'filters out' irrelevant stimuli (Tones K.T., 1972).

Perception is the process which operates after the message has been selected by attention. This process organises the message in a meaningful way so that the mind can try to make sense of the message by putting

it into categories and meaningful 'pigeon holes'. The mind cannot handle a large quantity of information, or difficult information, and tends to organise these messages in a rapid economical way thus leaving the mind available for other activities. This rapid organisation is done by 'guessing' what is 'outside' on the basis of cues such as lines, shapes, colours, sounds. These cues are learned, but if they have not been learned, the meaning of the cues perception is difficult and sometimes impossible, and we have to be taught to perceive and to organise the new information. Although the brain has ten thousand million cells, it has a 'limited channel capacity' and this fact underlies the operational principles of the system and is an important fact in the learning process.

The significance of cues may be overridden by motivational 'set', which refers to established values and beliefs held by a person which are strong enough to make him reject new ideas that appose these beliefs.

4.4. Remembering and Forgetting.

A considerable amount of research has been carried out over the years on the vital question of recall. Joseph Locke, as long ago as 1790, stated that,

> "....the mind does three things, first it chooses a certain number of specific ideas, secondly it gives them connection and makes them into one idea, thirdly it ties them together by a name."

Ebbinghams in 1885, carried out the earliest experiment on self-learning by trying to memorise a list of nonsense syllables with a criteria of success being two errorless performances.

The process involved in remembering has been stated to be firstly perception, secondly reception and organisation, thirdly learning (computing) and fourthly registration ('pigeon holes'). Remembering has to do with storing and with retrieval from store. The decay theory of forgetting maintains that every item that you store you forget in time, it decays away. The interference theory contends that the more items fed into the memory store the more difficult it is to remember anything.

The factors causing forgetting by a patient in a doctor/patient consultation situation have been, researched and given as follows:-

a) The amount of information received.

b) The emotional state of the patient.

c) The limited capacity of the patient regarding,

(i) serial position of information-primacy/recency situation;

(ii) motivation and interest of the patient;

(iii) specificity of information.

Motivated forgetting also plays a role, in that one tends to forget what one does not wish to remember. Zeigarnick states that recall is selective

and will be determined by ego involvement and uniqueness, and also involves interpretation and reconstruction, but may also involve distortion due to conventionalisation.

CHAPTER 5. AN OUTLINE OF THE SOCIOBEHAVIOURAL DETERMINANTS OF COMPLIANCE WITH HEALTH RECOMMENDATIONS AS DEVELOPED IN THE HEALTH BELIEF MODEL AND THE VALUE EXPECTANCY THEORY.

5.1. **The Health Belief Model** (HBM) is a theoretical construct predominantly of American origin comprising a number of beliefs seeking to provide a rationale for people's behaviour in matters pertaining to their health. More specifically it is a construct that is applied to explain the populations utilisation, or more significantly for those engaged in health education, the non-utilisation of health services. The health services in question are especially the Preventive Health Services which include environmental health.

The HBM is generally applied to those behaviours known as Illness Behaviour (Kirscht J.P. 1974 (a)) and Sick Role Behaviour (Becker M.H. 1974). However, it can also be applied to environmental health, and it is this category of behaviour that will be considered in this Chapter. The definition of Health Behaviour has been given as "any activity undertaken by a person believing himself to be healthy, for the purpose of preventing disease or detecting it in an asymptomatic stage" (Kasl S.V. and Cobb S. 1966).

In its broadest sense the HBM (according to Rosenstock L. 1974) is developed from themajor concept of,

> "an individual existing in a life space composed of regions, some of which are positively valued (called positive valence) and others of which are negatively valued (called negative valence) and still others of which are relatively neutral....with a process of being pulled by positive forces and repelled by negative forces."

The HBM is also thought by others (Becker M.H. and Maiman L.A. 1974) to be anchored in the "value-expectancy" theory essentially suggesting that behaviour is based on subjective perceptions of outcomes in terms of probability and benefit for the individual, sometimes described as subjective expected utility (SEU). The standard sociobehavioural model as formulated by Rosenstock (1966 and 1974 (a)) postulates that,

> "in order for an individual to take action to avoid a disease he would need to believe,
>
> i) That he personally is susceptible.
>
> ii) That the occurrence of the disease would at least a moderate severity on some components of his life.
>
> iii) That taking a particular action would in fact, be beneficial by reducing his susceptibility to the condition or, if the disease occurred, by reducing its severity, and that it would not entail overcoming important psychological barriers such as cost, inconvenience, pain, embarrassment."

The same hypothesis has been stated by Becker and Maiman 1975 as,

> "....persons will generally not attempt to diagnose or prevent a condition unless they possess minimal levels of relevant health motivation and knowledge, perceive themselves as potentially vulnerable and the condition as threatening, are convinced of the efficacity of the intervention, and see few difficulties in undertaking the recommended action."

Of particular importance to health educators is the further conclusion of Becker and Maiman that the,

> "....HBM variables provide a satisfactory explanation for the majority of findings in the area of preventive health behaviour...These findings are of considerable applied value as the perceptions and beliefs which make up the HBM have been demonstrated to be alterable, thus, by knowing which model components are below a level presumed necessary for compliance the physician (or other health worker) may be able to tailor intervention to suit the particular needs of each patient."

It is necessary then to examine these variables so that the Environmental Health Officer may be able to intervene effectively and promote the adoption of preventive action in environmental health.

5.1.1. Perceived Susceptibility - Perceived susceptibility refers to the subjective risks of contracting a condition and is essentially patient, recipient orientated. The degree of perceived susceptibility to, or perceived probability of, a given condition may vary widely from complete denial to statistical possibility to immediate likelihood. It is important to emphasise the perceived 'subjective' or 'phenomenological' nature of this variable.

The Environmental Health Officer will have doubtlessly encountered this behavioural pattern in persons, and will have observed that there is a positive correlation between relatively higher levels of subjective vulnerability and compliance with his recommendations. The healthy rural octogenarian is hardly likely to be persuaded to stop drinking water from a suspect well if he has done so all his life with no apparent ill effect to himself.

Becker and Maiman (ibid) conclude their study of perceived susceptibility by stating,

> "It would therefore appear from a review of studies employing this variable that 'perceived susceptibility' has demonstrable explanatory and predictive value, and should be a fundamental part of a psychosocial compliance model."

5.1.2. Perceived Seriousness - The HBM assents that susceptibility alone is insufficient to provoke action unless the individual also believes that a certain condition is also of serious consequences. These

consequences may be organic, physiological or psychological (emotional) or social. An illness may have serious reperoussions on a person's work, family life and social relations, the degree and nature of the seriousness being subjectively determined. There is ample evidence from a wide variety of studies that no constant association exists between the medical, professional views of a problem's severity and the patient's compliance. The Environmental Health Officer would do well to bear this in mind in his own work, especially when 'fear appeal' is used in environmental health educational programmes.

5.1.3. Perceived Benefits of Taking Recommended Action - Rosenstock states that,

> "the person's beliefs about the availability and effectiveness of various courses of action, and not the objective facts about the effectiveness of action, determine what course he will take."
>
> (Rosenstock I.M. 1974)

Whilst perceived susceptibility and seriousness provide a potential force or goal to taking action the specific nature of this action is,

> "though to be influenced by beliefs regarding effectiveness of known available alternatives."(ibid)

All too often the Environmental Health Officer will have found that his recommendations, based on scientific facts, clash with folk law remedies strongly held by conservative communities. Subsequent compliance with his recommendations, or with the statutory requirements laid down in bye-laws and regulations, will frequently depend on the public perceiving the efficacity of the preventive environmental health action.

5.1.4. Perceived Barriers to Taking Recommended Action - Although an individual may believe that a recommended action is effective and beneficial he may still take no action owing to perceived barriers for doing

so. These barriers may be many, be real or imagined, and include social pressure, inconvenience, pain, embarrassment, expense, fear, apathy etc. The important perceived barrier also exists where the individual may not consider the recommended action to be effective or trustworthy.

Rosenstock suggests that if an individual is suspended between positive (which are perceived benefits) and negative (perceived barriers) forces might either vacillate between the choices without making a decision, or be subjected to an incapacitating increase in fear or anxiety (Rosenstock I.M 1974 (b)). The experienced Environmental Health Officer may detect the anxiety in a restaurant owner during a follow-up inspection, when apathy or expense has been the reason for a continuing low standard of hygiene in his establishment.

5.1.5. Triggers or Cues to Action - It is postulated that a cue or trigger is necessary to precipitate overt action, even though the goad to act is supplied by combined levels of susceptibility and seriousness and the perceived benefits indicate a course of action.

In the case of illness these triggers may be internal such as pain, in environmental health they are external and could be the result of a health education programme, or the receipt of a letter or notice from the Local Authority. It is for the Environmental Health Officer to judge the intensity and potency of this 'cue' necessary to precipitate an individual into action and will vary with the different intensities of the other variables mentioned. The strongest trigger to action possessed by the Environmental Health Officer is the resort to legal action, but rightly this is used mostly as a last resort when the persuasive environmental health education approach has failed.

5.1.6. Conclusion - Considerable field research has been carried out to test the Health Belief Model, the findings of which have mostly given support for the theory. However, if it is not to remain of academic interest only it must be of use in the field and as Kirscht (1974 (b)) points out,

> "A claim for utility can be made only if the relevant beliefs operate dynamically."

It is important that the beliefs postulated in the model be amenable to activation and to directed change and that behaviour be linked operationally with these beliefs. The ultimate value of the model to the Environmental Health Officer is that, being aware of its theory, he may be more likely to take the correct path in persuading individuals to overcome the barriers that prevent them from adopting healthful environment practices.

5.2. The Value Expectancy Model.

The Value Expectancy Model (VEM) as depicted in figure 3 is an amalgam of various theories and models with the Health Belief Model component very clear. The broad conceptual framework of the VEM is propounded by Fishbein and his colleague Aijzen in the introductory chapter of their book 'Belief, Attitude, Intention and Behaviour (1975)) where they expand the debated relationship between attitudes and behaviour and impose two added dimensions, those of beliefs and behavioural intentions.

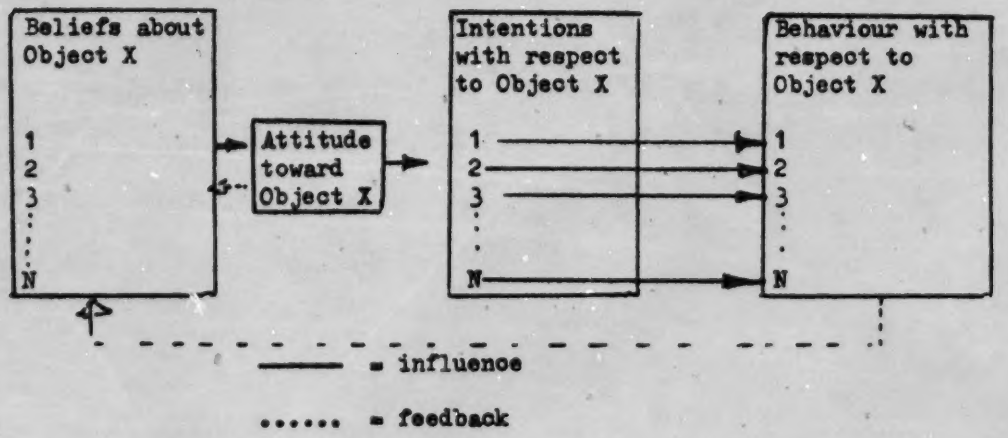
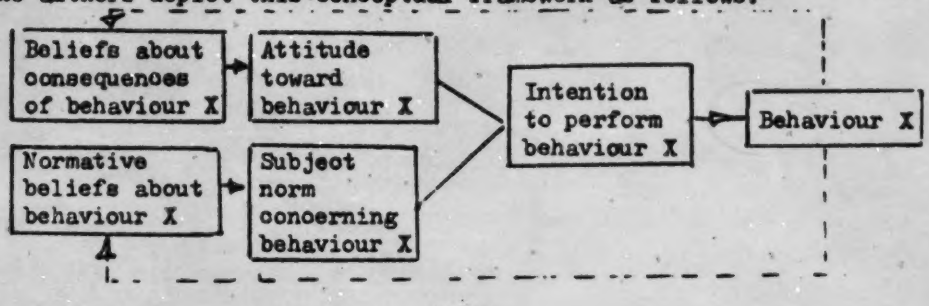


Fig.1 Schematic presentation of conceptual framework relating beliefs, attitudes and behaviours with respect to a given object.

The authors then introduce another major determinent "normative pressures which are described as follows:" other beliefs relevant for a behavioural intention are beliefs of a normative nature i.e. beliefs that certain referents think the person should or should not the behaviour in question. The person may or may not be motivated to comply with any referent. The normative beliefs and motivation to comply lead to normative pressures. The totality of these normative pressures may be termed "subjective norm", (op.cit)

The authors depict this conceptual framework as follows:


Beliefs about consequences of behaviour X
Attitude toward behaviour X
Intention to perform behaviour X
Behaviour X
Normative beliefs about behaviour X
Subject norm concerning behaviour X

——— = influence

..... = feedback

Fig.2. Schematic present of conceptual framework for the prediction of specific intentions and behaviours. (Fishbein M. and Aijzen I. 1975)

These schematic presentations allow for what is believed to be the case by many people, that attitudes follow behaviour. It is important to note the feedback loops, the performance of a particular behaviour may lead to new beliefs about the object and in their turn these new beliefs influence the attitude. The Environmental Health Officer concerned with changing a person's behaviour must realise that the processes and forces that lead to a particular behaviour are of considerable importance if that behaviour is to be changed.

Fishbein and Aijzen state that while attitude comprises the affective element, belief comprises the cognitive element, and the information a person has about the object. Specifically a belief links an object to some attribute. The object of a belief may be a person, a group of people, an institution, a behaviour, a policy, an event etc. and the associated attribute may be an object, trait, property, quality, characteristic, outcome or event (op.cit).

Behavioural intention is stated to refer "to a person's intentions to perform various behaviours" and as in the case of beliefs different intentions will represent different probability dimensions and thus

will not necessarily be highly related. The term behaviour refers to "observable acts that are studied in their own right". (op.cit)

An attitude will be determined by the salience of particular beliefs and their evaluative aspects. If these particular beliefs associate the object with favourable attributes then the resultant attitude will tend to be positive. For example a person may hold many beliefs about the chlorination of drinking water, it gives tea and coffee a medicinal taste, it stains kettles yellow etc. but the outcome of the sum of these beliefs and their evaluative aspects may lead a person to hold a moderately favourable attitude toward chlorination in that it is better to accept these inconveniences and have a microbe-free water as chlorine kills microbes and microbes can be dangerous to health.

In Figure 3 the important notions of normative beliefs and subjective norms is linked to the lay referral system (LRS). The LRS is widely acknowledged to have an important influence on health-related behaviour. The nature of the LRS has been described by Freidsen E (1973) as,

> "advice-seeking and advice-giving in health affairs among laymen to organise the direction of behaviour by referral to one or another consultant."

The cultural content is strong in the system and naturally the particular culture or knowledge people have about health and the inter-relationships of the laymen play an important role.

The value system of the individual is at the core of Figure 3 and Rokeach M (1973) defines values as,

> "an enduring belief that a specific mode of conduct or end state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence."

and therefore a value system is,

> "an enduring organisation of beliefs concerning preferable modes of conduct or end states of existence along a continuum of relative importance"(op.cit)

Values are motivationally charged and comprise a superordinate cluster of attitudes and serve as standards of conduct, and are typically formed by primary socialisation and by varying degrees by Secondary Socialisation, Anticipatory Socialisation and Re-socialisation. Values are difficult to alter, particularly those that are most salent in an individual idiosyncratic hierarchy.

The base of the value system as shown in Figure 3 is an individual's 'drives' or needs. Maslow produced a hierarchy of motices (Maslow A. (1954)) ascending from the basic biological needs at birth to the more complex psychological motives such as self-actualisation that become important only after the more basic needs have been satisfied.

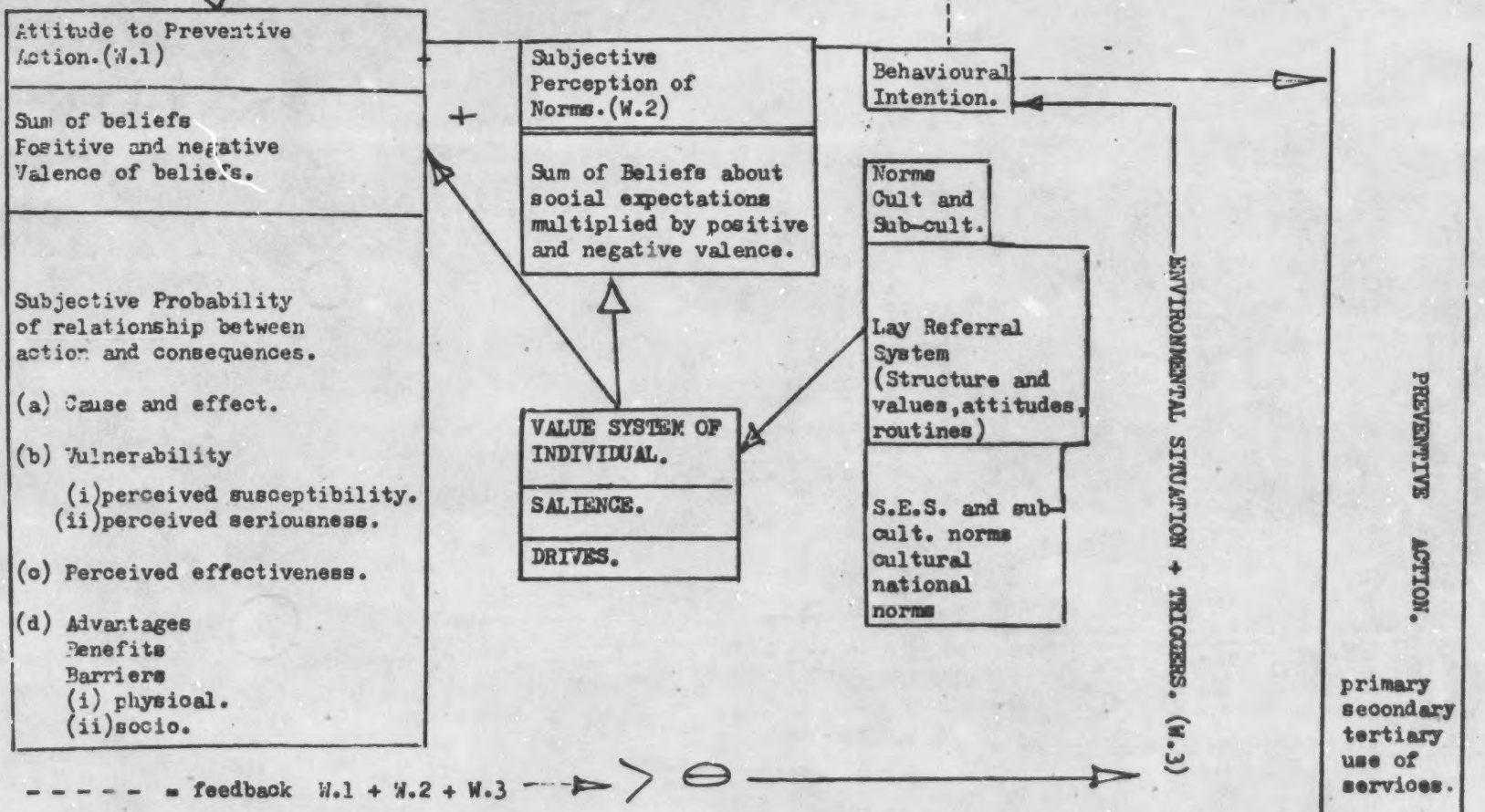


Fig.3. Value Expectancy Theory and Preventive Health Behaviour.
(Schematic layout after Tones, K.T. (1977))

CHAPTER 6. AN APPLICATION OF THE SYSTEMS APPROACH.

6.1. The Systems Approach as applied to the Learning Situation in a Course Programme.

It would seem logical to believe that an educational programme will be more effective if its objectives have been clearly defined by what is known as learning objectives. Field research has shown that it is not possible to evaluate accurately the results obtained from an educational programme if its objectives have not been defined.

The result of education has been defined as an expected change in the behaviour of the student in the course of a given period. This behaviour to be explicitly defined in the form of education objectives which describe the expected performance with a programme of teaching/learning activities to be prepared and implemented to facilitate the attainment of these objectives, together with a criterion reference evaluation which will measure the extent to which these objectives have been attained. (Guilbert J.J. 1976)

The first step in applying the so-called systems approach to an educational or training programme is to analyse the nature of the task involved. Tasks naturally vary, some being purely academic or intellectual, others primarily concerned with physical skills. However, regardless of the task it is necessary to determine both the characteristics and ingredients of the task or job that the student has to learn as it is only when these precise characteristics are known in detail that the training need can be established and the learning objectives written. The last, and major section of this paper illustrates this approach in detailing the

tasks of an Environmental Health Officer in the field of health education and developing from them learning objectives based on these tasks. It is obvious that great care must be taken in carrying out the task analysis, as this forms the basis of the learning prescription. It is essential that it is compiled either by a member of theprofession working in the specific field and trained in education technology, or by an educational technologist working in close conjunction with a person doing the actual task. The person who is carrying out the task has been termed the 'master' and it has been stated that he must be chosen with care to ensure that he can do the job at the required level of mastery which all students will be expected to attain. If the master's level of proficiency is set too low the resulting task analysis will be invalid, with a consequent danger of undertraining (Davies I.K. 1971). The other minor sources of information for the task analysis are teachers and instructors, course materials and examination papers, and the client.

A learning objective describes what the student is expected to be able to do to demonstrate that he has learned successfully. There are three different taxonomies of educational objectives, defined as the cognitive, affective and psychomotor domains (Bloom B.S. 1956)[1]. In simplified outline the cognitive domain is concerned with knowledge and deals with problem solving, interpretation of data and the recall of facts. The affective domain includes those objectives that emphasise feeling, emotion, values and attitudes and is sub-divided into reception, response and internalisation. The psychomotor domain is concerned with motor skills and the sub-division of categories is imitation, control and automation. In all cases it must be stressed that learning objectives

describe the behaviour of the student and not the teacher, and that the three domains are intricately connected.

There are three types of educational objectives (Guilbert J.J.1976)

(i) Institutional, broad, all-inclusive at the level of the educational establishment.

(ii) Intermediate, still broad but developed from institutional objectives.

(iii) Specific or instructional, corresponding to a given learning activity, precise and measurable.

The learning objectives in the last section of this document are examples of the intermediate type.

Once the learning objectives have been written, and revised if necessary by subject specialist teachers meeting as a curriculum committee, the programme can be planned based on the objectives. A programme has been defined as a series of planned educational activities a student must go through with the assistance of teachers (Guilbert J.J. 1976). The learning objectives, based themselves on the task analysis, make sure that the essential quality of the programme, its relevance, is respected. The relevance is the extent to which the programme facilitates the acquisition of the level of competence and areas of skill necessary for the student to practice successfully his profession.

An important part of the systems approach to an educational programme is the role of the teacher. There is more emphasis on what the student learns and less on what the teacher presents. The purpose of teaching being to help students to acquire knowledge, to understand, to analyse,

synthetize and evaluate it, to achieve skills, to establish habits and develop attitudes (op.cit). The creation of the correct atmosphere to facilitate learning is stressed. An atmosphere which encourages both student and teacher to be active, to emphasise the personal nature of learning, to recognise people's right to make mistakes, tolerate imperfection and encourages openness of self and trust in self, and makes people feel respected and accepted is to be aimed at.

The use of a variety of media to facilitate learning is important, together with the use of programmed learning to overcome the problem of different learning speeds in students and to put students in an active situation.

One of the cornerstones of this approach to learning is the efficiency with which student competency can be evaluated against the learning objectives. Evaluation is a systematic process which enables the teacher to measure to what extent the student has attained the educational objective. The essential quality of evaluation is according to Guilbert J.J. (op.cit), validity, which is defined as the degree of precision with which the test employed really measures what it is intended to measure. Other qualities of a test are given as being directly related to the educational objective, being realistic and practical, important and useful, complete but brief and precise and clear. The stages of assessment are stated to be (a) pre-requisite level testing to ascertain whether the students have reached a certain level before starting the course; (b) pre-testing, when a given course commences to make sure of the level of the students with regard to that course to be able to assess real gain; (c) interval testing as the course proceeds and (d) final testing at the end of the course. Safety testing is also recommended if there is a large difference at

the end of the course between the expectation of the student and the result of the final examination, so as not to give the final examination the role of final and arbitrary sanction. The term "test" includes all forms of evaluation procedures and not merely paper and pen examinations. Simulation of professional conditions and performances, taking into consideration resources for such simulation, should be planned when terminal student competencies are evaluated.

6.2. The Systems approach as applied to Environmental Health Education Programmes.

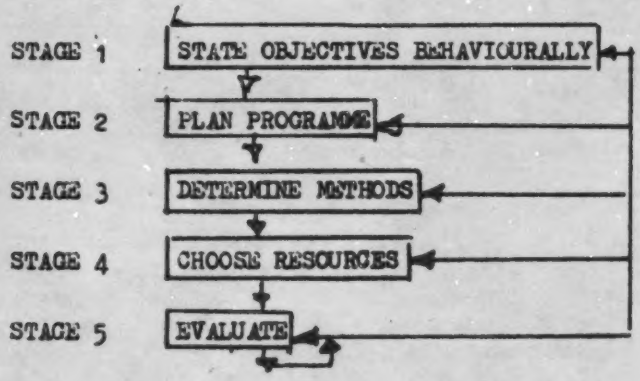
The systems approach is a methodology. Its purpose is to identify clearly certain desirable outcomes and all those factors which materially contribute to the achievement of those outcomes. Once this has been done all the processes and inter-relationships are systematically examined and manipulated so that the objectives are attained with the maximum efficiency (Tones, B.K. 1974).

In the last section of this document, containing the learning objectives dealing with programme planning (Task, B) the steps in the systems approach as applied to a programme of environmental health education are enumerated and developed in some detail. It is not proposed to repeat these steps here, but rather to look at their application a general sense to health education.

It is obvious that the "teaching" which takes place in a school situation as outlined in Chapter 5.1, and the "teaching" involved in an environmental health programme for improved food hygiene in a food factory are two different things. However, both situations have a common denominator in that they are both concerned with producing a behavioural change in the individuals at whom the "teaching" is directed. This change may be brought about by face-to-face interaction between teacher and learner in a classroom or by the more indirect intervention of a poster in the food factory. Teaching aimed at changing attitudes in the factory food handler, for example, if successful may not produce immediate observable changes in behaviour but may have

none the less changed an individual's behaviour potential in that some time in the future the new attitude will emerge in a tendency to act. An example of this may be the food handler immediately reporting sick the next time he suffers a mild attack of gastro-enteritis.

6.2.1. The Stages of the Systems Approach - A programme aimed at changing behaviour usually involves six major operations as shown in the following model:-



THE FEED-BACK LOOP MODIFIES EARLIER STAGES AS A RESULT OF EVALUATION.

The feed-back loop is most important because as a result of evaluation, the programme, methods, resources and even objectives, may be modified to achieve greater success. A measure of success which would seem an obtainable one is the '90/90 rule', which means the achievement of 90 per cent success by 90 per cent of the people for whom the programme is intended.

6.2.2. The Statement of the Programmes Objectives - The remarks contained in this paper regarding learning objectives in an educational programme are applicable to the objectives that should be written for an environmental health programme, and it is not

intended to repeat them in this Chapter (See Chapter 5.1 and last section of this paper). However, if it can be assumed that a cognitive input will be followed by an attitude change in the affective domain the problem will arise in evaluating the extent to which the programme has altered emotional response. In the following example of an objective written for the programme of improved hygiene amongst factory food handlers, observation would determine whether the foodhandlers had changed their behaviour regarding hand washing.

After attending the course on food hygiene the foodhandlers will:

COGNITIVE DOMAIN	AFFECTIVE DOMAIN	PSYCHOMOTOR DOMAIN	TEACHING RESOURCES APPLICABLE
1.List from memory the following parts of the body which could breed germs that can cause food poisoning: 1.1. the nose, 1.2. the scalp, 1.3. any spot or pimple, 1.4. any cut or abrasion of the skin.	1.Accept that food poisoning germs grow on the human body and can be conveyed by the hand to contaminate food stuffs and people who eat these food stuffs can become ill and even die.	1.Wash their hands,using soap,hot water and nail brush in such a manner as to render them free from dangerous germs.	1. Film. 2. Pamphlets. 3. Posters.

In the above connection it is worth observing that though health education is not moral education, it involves teaching people to have a sense of responsibility for each other within the community.

6.2.3. Attitude Change - Attempts to change attitudes are notoriously difficult and often ineffective, and there have been examples where the very attitudes the health educator has been trying to change have become more entrenched. However, it is pointless teaching the principles of good food hygiene to food handlers unless attitudes can be changed and they

accept a commitment to action which in the above objective would demonstrate itself in frequent and efficient handwashing. It is known that fear-inducing messages do not have the impact which the Environmental Health Officer feels they ought to have, and the threat of legal proceedings in itself is not enough. The reasoned, logical approach has been found to be more effective, and such factors as the nature of the message, the personality and authority of the persuader etc., which have been developed in Chapter 3 must be considered.

6.2.4. Structuring the programme - It is essential to clearly define the target group at which the programme will be aimed. This can become obvious for example through investigation into food poisoning outbreaks where the source of contamination can be traced back by bacterial analysis of specimens to specific food handler groups. Health Educators planning a programme of prevention of ischaemic heart disease might, however, wish to educate wives in the preparation for their at-risk, middle-aged husbands, of low cholesterol diets, the wives being considered the target group in this context.

The planning and organisation of the subject matter of the programme is the next stage. The programme content may be one lecture, supported by audio-visual aids, or it may be a whole series of courses run on seminar lines over a period of time. A logical order of the presentation of material is always necessary so that basic principles can be presented early in the teaching process and higher order principles can be based on a foundation of understanding.

6.2.5. Choice of Methods and Resources - Having decided on the target group, the programme content and the structure of the material, the question arises how the Environmental Health Officer will teach the

subject matter. The most appropriate methods for the programme in question must be chosen. Here if the Environmental Health Officer is carrying out his own educational programme alone, he might be well advised to use the methods in which he has the most experience or success in the past. There are many ways of changing behaviour: the lecture or short talk, the seminar, the discussion group, the 'buzz' group, face-to-face counselling and so on (See Section 2, Programme Implementation). Once a decision is made the choice of resources has to be made from the large number now available for health education. There are two main factors to be considered which apply to both the choice of resources and methods. Firstly the learner has to be considered, his knowledge, attitudes and performance (what he is capable of doing), and secondly the nature of the learning task imposed by the subject matter. In this second factor, considering again our objectives concerning handwashing by food handlers, a talk reinforced by an appropriate film translating it into an iconic mode would be suitable for the cognitive input, with a demonstration of satisfactory handwashing techniques for the psychomotor domain of the learning. It will be clear that the methods and choice of resources will be determined by the learner's ability level.

6.2.6. Evaluation - To determine the food handler's previous knowledge of food hygiene may involve the Environmental Health Officer in compiling a questionnaire to be completed by the food handlers and then evaluated by him, or simply in questions and discussions with the food handler on which the Environmental Health Officer can form a judgement.

The monitoring of the progress of the programme depends on the 'feed-back' received by the Environmental Health Officer that he is communicating successfully with his audience and has been developed in the Chapter on

communications (Chapter 4).

The post-testing may involve a second questionnaire answered by the audience and evaluated by the Environmental Health Officer to determine the effectiveness of his programme. Effective learning and attitude change would also be demonstrated by an improved level of food hygiene resulting from behavioural change on the part of the food handlers.

SECTION TWO.

CHAPTER 1. THE ENVIRONMENTAL HEALTH OFFICER'S HEALTH EDUCATION ROLE.

Learning Objectives based on Field Tasks.

The first section of this dissertation has stressed the importance of health education to the Environmental Health Officer in the successful carrying out of his tasks. An outline has also been given of the most important models in health education and their application to the environmental field. This second Section seeks to give the base, in the form of learning objectives, on which an effective curriculum can be constructed to provide the Environmental Health Officer with the needed skills.

In the analysis each major aspect of the professional responsibilities of the Environmental Health Officer in health education has been treated as a subject and analysed separately:

Establishing an Area Profile

Programme Planning

Programme Implementation including:

- lecture skills
- teaching small groups
- classroom teaching
- face-to-face discussions
- methods and learning resources
- presentation of press releases
- television and radio appearances

Programme Evaluation.

Within each section there are three columns. The left-hand column states what the Environmental Health Officer is expected to be able to do in actual practice (psychomotor domain, performance/skills column. The middle column sets out what principles and concepts the student should understand, and what facts he should be capable of recalling from memory, in order to be able to carry out the related task in the skills column. (cognitive domain, knowledge/understanding column) The right-hand column is concerned with the attitudes that a student should acquire in order to carry out effectively the related task in the skills column. (affective domain, attitudes/feeling column). It is important to appreciate that the verbs "to understand", "to list", "to write notes", etc. have been used in order to keep the analysis as brief as possible. Eventually, when study sessions, learning resources and tests come to be designed, it will be necessary to give an example for each statement to illustrate precisely what the student should be able to do in order to demonstrate that he has understood correctly, or that he does know. An example of "list the following aspects of" could thus be defined as "state the relevant facts in writing with 90% accuracy within (x) minutes, without reference to any text book or notes".

The analyses begins with a specification of the common core of understanding and knowledge (headed pre-requsite knowledge) that is required for almost all the tasks listed in the skills column. This has been done to avoid needless repetition not only in the analysis itself, but also in what the students should be taught. Nevertheless this common core should be learned where possible within the context of the tasks for which such understanding and knowledge is thought to be essential.

1.1.

ENVIRONMENTAL HEALTH OFFICERS HEALTH EDUCATION ROLE.

BREAKDOWN OF TASKS INTO MAJOR STEPS.

TASKS	MAJOR STEPS INVOLVED
A. Establishing an Area Profile. This will involve establishing base-line data by analysing and selecting where necessary relevant information concerning the area for which the EHO is responsible. The efficient planning of environmental educational programmes and activities will depend on this task.	1. Analysis of environmental health problems existing in his area, determined by his personal assessment of the situation through field surveys and by the existing relationship of known national environmental epidemiological data. Preparation of an index of the problems listed by priority. 2. Establishment of working relationships with agencies operating in the educational field. This would include the social service the school educational system and voluntary agencies. 3. Preparation of a geographic and demographic profile of his area. This would involve:- 3.1. The preparation of a map with transparent overlays defining areas occupied by social class or race, classified industry, areas of problem housing, community facilities, and epidemiological data. 3.2. The understanding of community characteristics to include leadership patterns, religious beliefs, sub-culture norms.
B. Programme Planning. Involving the formulation of a plan for environmental health education designed to supplement and support the EHO's "engineering approach" and enforcement function. The major aim of such a plan is one of improving the community's health status by means of educational and other strategies designed to modify behaviour.	1. The adoption of a systematic approach to programme planning involving:- 1.1. Identifying environmental health priorities having reference such factors as feasibility and practicability 1.2. statement of health educational aims 1.3. writing of detailed objectives 1.4. selection of target population 1.5. pre-testing of target population 1.6. planning content of programme 1.7. choice of appropriate method and resources 1.8. evaluation.

TASKS	MAJOR STEPS INVOLVED
C. Programme Implementation. This will involve the execution of the environmental health education programme by the EHO, including the selection of appropriate methods and resources and collaboration where necessary with other health education agencies. To operate effectively in this context the EHO will need to develop skill in communicating meaningfully and effectively as a person and as a professional EHO. This will involve gaining insight into other people's behaviour, breaking down barriers to communication and developing skills in active listening and the free exchange of information. The free expression of views and feelings in constructive ways, and the making of positive suggestions will also play an important role for the EHO in projecting his educational role.	1. METHODS 1.1 Large sale programmes with the utilisation of mass media involving talks on local radio, local television appearances and the drafting of press releases 1.2 Formal teaching programmes involving classroom teaching in schools, formal lectures to specific audiences, group work with special groups, e.g. food handlers. 1.3 Informal counselling involving face-to-face discussions with individuals and families. 2. RESOURCES 2.1 Personnel. Utilisation of the services of colleagues, assistants, persons with high credibility in the topic, commercial artists, and other personnel in the implementation of the programme. 2.2 Learning Resources. Choice of appropriate audiovisual aids to include display units, posters, films, slides, overhead projector slides, flannelgraphs, etc.
D. Programme Evaluation. The criteria for the evaluation will be in terms of the degree to which the stated objectives have been achieved.	1. Effective use of the appropriate evaluation techniques amongst target groups to determine the effectiveness of health education. This will involve:- 1.1 Pre-testing of the target population. 1.2 Monitoring of programme progress. 1.3 Post-testing of target population.

1.2
PRE-REQUISITE SHEET 1.
KNOWLEDGE.

PSYCHOMOTOR DOMAIN	COGNITIVE DOMAIN	AFFECTIVE DOMAIN
After completing the course the EHO student will be able to:-		
PRE-REQUISITE KNOWLEDGE	1. Write notes on a rationale for health education that includes: - the right of people to maximise their health - the concept of health - the relative ineffectiveness of curative medicine and its impact on contemporary health problems - the escalating costs of medical care - the implication of behavioural factors in the aetiology and management of most illness of significance - the potential solution of behaviour modification parallel with social engineering which often require an educational approach, e.g.fluoridation of water supplies - evidence of increasing iatrogenesis.	
	2. Describe the two-system approach in health education procedures: - through the school system - through community health.	
	3. Describe what is meant by professionalism with special regard to health education in environmental health: - sociological description of a profession - professional expertise - professional ethics - concern for clients - conduct towards colleagues and clients.	Feel that he has a professional responsibility to attempt to enhance people's health through educational procedures that aim at modifying their behaviour regarding environmental factors.

PRE-REQUISITE SHEET 2.
KNOWLEDGE.

PSYCHOMOTOR DOMAIN | COGNITIVE DOMAIN | AFFECTIVE DOMAIN

After completing the course the EHO student will be able to:-

4. Write notes on the three levels of prevention in which health education operates, i.e.

   - primary prevention
   - secondary prevention
   - tertiary prevention
     and understand that the tertiary level is often inapplicable in environmental health education.

   List the interventions possible through environmental health education at each level.

5. Understand the meaning of the term "socialisiation", and describe the following related terms:-

   - values, attitudes and routines
   - culture and sub-culture
   - culture pattern
   - culture change
   - primary and secondary socialisation
   - creative and conservative socialisation and re-socialisation
   - law of primacy.

6. Write notes on the following types of learning:-

   6.1 signal learning
   6.2 signal response learning
   6.3 verbal chaining or rote learning
   6.4 multiple discrimination learning
   6.5 programme learning.

7. Describe the meaning of the term "communication" in relation to the learning process. Explain in behavioural terms the following expressions used in analysing the communication process:-

   - effective communication
   - encoding the message
   - vehicle
   - communication failure
   - attention, motivation and interest
   - perception.

PRE-REQUISITE SHEET 3.

PSYCHOMOTOR DOMAIN

COGNITIVE DOMAIN

AFFECTIVE DOMAIN

8. Explain the factors which cause failures in communication by describing the following terms:-

   - in-correct encoding of the message
   - overload of channels of the audience
   - misperception due to incorrect reception of information.

9. Write notes on remembering and forgetting regarding the 'Decoy theory of forgetting' and 'Interference theory'. Understand that the process involved consists of:-

   - perception
   - reception and organisation
   - learning
   - registration
   - forgetting.

10. Describe 'Motivated forgetting', and understand that recall of information can be selective and determined by ego involvement and uniqueness.

    List the factors causing forgetting.

11. List the factors that are important in improving recall of information communicated in a learning situation.

12. Write notes on the communication of INNOVATIONS as described by ROGERS and SHOEMAKER[1] on the following aspects of their approach:- (see Chapter 3)

    12.1 - definition of an innovation and of communication
    12.2 - time taken to adopt innovations
    12.3 - types of change
    12.4 - types of innovation decisions, optional, collective and authority decisions.
    12.5 - the "hypodermic needle model" and its defects leading to it being discarded.

[1]Rogers and Shoemaker the Communication of INNOVATIONS 1971. MacMillan Publishing Co.Inc.

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12.6 - the "two-step flow model" and the multi-step flow model (Lasarsfeld et al 1944)
12.7 - the diffusion process - inventors, change agents, opinion leaders and indigenous aids
12.8 - homophily and heterophily, empathy and attractiveness and the role they play in the flow of communication
12.9 - the role of "set" in the adoption of innovations.

13. Reproduce in outline the health beliefs model and write notes on its underlying theory that the alteration or creation of beliefs about susceptibility, etc. in the individual is assumed to lead to appropriate health, illness or sick role behaviour.

14. Write notes to cover the following aspects of Festinger's theory of cognitive dissonance (Festinger L. 1957)
- that an individual will strive towards consistency within himself
- that inconsistency occurs when an individual believes in one thing and yet acts contrary to this belief
- that an individual is motivated to reduce this conflict, which is called dissonance
- that the cognitive elements are meant to mean knowledge, beliefs or opinions about oneself or the environment and can be in one of three relationships - dissonant, consonant or irrelevant
- that the magnitude of any dissonance generated is a function of certain conceptual variables.

1.3. TASK A. ESTABLISH AN AREA PROFILE. SHEET 1.

PSYCHOMOTOR DOMAIN Performance/Skills	COGNITIVE DOMAIN Knowledge/Understanding	AFFECTIVE DOMAIN Attitudes/Feelings
After completing the course the EHO student will be able to:-		
1. Carry out a survey of area and list specific environmental health education needs revealed in order of health priority. 1.2 Design a survey and evaluation form based on the model given in Annex	1. Recognise the signs, malpractices and environmental health deficiencies that indicate a need for behavioural change in persons working in key positions if higher health standards are to be achieved. 1.2 Collect this data in a systematic manner with the use of survey forms. 1.3 Develop, through study of existing national epidemiological data, a knowledge of the prevalent environmental linked diseases. 1.4 Compile, through enquiry and research, a register by type, location and names of relevant personnel of agencies involved in health education in his area. The register to include particulars of resource persons, opinion leaders, and indigenous change agents when known.	1. Accept the importance of developing observational skills. 2. Appreciate the value of health statistics in deciding on health education programmes and priorities. 3. Accept that environmental health education can be more far-reaching and effective if agencies and key persons contribute. 4. Appreciate the value of a visual presentation of a problem in planning and as an important aid in conveying information to others
2. Compile a large scale map of his area with a series of transparent overlays depicting the following:- - housing areas by ethnic group or social class - zones of problem housing - zones of classified industry - community facilities - incidence of environmental-linked disease by location. (The map, with use of overlays, would serve to demonstrate, for example, the incidence of home accidents in problem housing areas.)		

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TASK A. ESTABLISH AN AREA PROFILE. SHEET 2

PSYCHOMOTOR DOMAIN	COGNITIVE DOMAIN	AFFECTIVE DOMAIN
3. Compile a written profile of the community characteristics in his area, to include notes on:- - cultural customs, beliefs and taboos - religion - superstitions - role of family - kinship and community patterns - leadership patterns - situations and factors that affect and influence health behaviour in home, school and community.	2. Utilise relevant pre-requisite knowledge (Numbers 5, 12) in compiling notes on a profile of community characteristics.	5. Accept the importance of being fore-armed with a knowledge of community characteristics before planning a programme leading to beneficial behavioural change when environmental heal malpractices are involved.

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1.4.
PROGRAMME PLANNING TASK B1-8. SHEET 1.

PSYCHOMOTOR DOMAIN	COGNITIVE DOMAIN	AFFECTIVE DOMAIN
After completing the course EHO student will be able to:-		
1. Plan the implementation of a programme of environmental health education using the systems approach.	1. Understand and list the following steps in the systems approach model as applied to the planning and implementing of a programme designed to improve environmental health by the use of health education methods:- 1.1 Define the nature of the existing problem. 1.2 Ascertain whether it is feasible to suppose that health education will solve the problem. 1.3 Describe the extent of the problem regarding mortality, morbidity, economics, quality of the environment and whether the trend is towards increase or decrease. 1.4 Ascertain the causal and behavioural factors and note any factors acting together that may produce synergistic effects. 1.5 List priorities for action in order, if possible, so that the solution of the first problem will make the biggest contribution to mortality/ morbidity reduction. 1.6 Outline for each causal factor the nature of the preventive measures divided into "environmental engineering" and educational areas. 1.7 Where preventive measures have proved unacceptable in relevant populations indicate what educational measure would be necessary to produce acceptability. 1.8 Consider feasibility of 1.7 in terms of cost, political barriers, ethnical difficulties, group norms, etc.	1. Accept the value of the application of a systems approach to planning and implementing a programme of environmental health education.

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PROGRAMME PLANNING TASK B1-8. SHEET 2

PSYCHOMOTOR DOMAIN	COGNITIVE DOMAIN	AFFECTIVE DOMAIN
2. Write clear, concise aims and objectives.	1.9 Identify, by writing broad programme aims in behavioural outcome terms, each stage of the preventive measures in the programme.	
	1.10 In light of the programme aims identify target population groups at which the programme will be aimed, remembering that these may not be the same as the at-risk groups.	
	1.11 Identify what the target population knows and understands and what are their beliefs and their attitudes to the problem (perceptions of seriousness, susceptibility, identification of barriers which might militate against adoption of recommended behavioural measures and identify characteristics likely to have relevance for success, such as literacy and intelligence).	
	1.12 Identify the target populations practices in what they do already and how big a change is necessary to bring about an improvement in the environmental problem.	
	1.13 Decide to what extent a pre-test of knowledge, attitudes and practices is necessary before further action.	
	1.14 Develop goals and objectives that will indicate what the target population must do to demonstrate that they have acquired the necessary knowledge, skills and attitudes.	
	1.15 Specify which agencies would appear to be potentially most productive in assisting in achieving the goals/objectives of the programme.	

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PSYCHOMOTOR DOMAIN

COGNITIVE DOMAIN

AFFECTIVE DOMAIN

1.16 List the characteristics of the agencies specified in 1.15 with regard to the following aspects that may have a bearing on their effectiveness in the campaign:-

- Legitimate authority (legal, medical, etc.)
- Referent authority (attractiveness, empathy, homophily, etc.) see pre-requisite knowledge 11.8
- Expertise necessary for successful health education
- Attitude to the programme.

1.17 Decide on the appropriate methods to use in the programme. These methods would depend on:-

- the preferred techniques of the Environmental Health Officer based on his feelings regarding the areas in which he feels most competent
- the knowledge and skills possessed by the agencies assisting in the programme
- the contents of the message (e.g. is fear/ threat to be used, or are material or psychological incentives to be offered
- the target group (see 1.11 and 1.12 above)
- programme objectives (whether they are knowledge, attitudes or skill orientated or a combination; see pre-requisite knowledge 13).

1.18 Detailed analysis of methods to be employed which may be:-

- face-to-face counselling
- group work (see task analysis C1.2)
- lecturing (see task analysis C1.2)
- media based approach, television, radio appearance, press releases.

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PROGRAMME PLANNING TASK B1-8. SHEET 4.

PSYCHOMOTOR DOMAIN | COGNITIVE DOMAIN | AFFECTIVE DOMAIN

1.19 List resources available which might consist of:-

- medical, engineering, architectural support
- audiovisual aids - hired, borrowed or produced by own service
- displays and exhibitions - mobile or static
- local media (radio, television, press releases).

Consider if programme is geared to and supported by any national programme organised by the Health Education Council, etc.

1.20 Develop evaluation techniques which amongst other methods may involve:-

- estimation of programme costs
- monitoring of programme regarding numbers attending, etc.
- estimation of changes in knowledge, attitudes and behaviours of target groups by questionnaire, personal observation, etc.
(Tones, B.K. 1977(b))

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1.5. PROGRAMME IMPLEMENTATION.

1.5. 1 (TASK C.1.2) THE LECTURE. SHEET 1.

PSYCHOMOTORO DOMAIN Performance/Skills	COGNITIVE DOMAIN Knowledge/Understanding	AFFECTIVE DOMAIN Attitudes/Feeling
After completing the course the EHO student will be able to:-		
1. Deliver a lecture in a manner so as to communicate effectively information, promote thought and where possible change attitudes.	1. Understand that lecturing is an art, and that skill is acquired by practice. (Bligh D.A. 1971)	1. Appreciate that a lecture is essentially autocratic in form and style, but that a lecturer can develop his personal style.
1.1 Obtain a verbal commitment from the audience that they accept the lectures objectives.	2. Write notes on three objectives that may be achieved by a lecture:-	2. Appreciate that lectures are as effective as other methods for transmitting information, but not more so.
1.2 Overcome irrational resistance to the acceptance of the lectures objectives.	2.1 - the acquisition of information 2.2 - the promotion of thought 2.3 - changes in attitude.	
	3. Write notes on the experiment of McLeish (1966) who found immediate recall of up to 40% of lecture material which fell to some 20% a week later.	3. Accept that an audience of lower mental ability tend to be passive listeners rather than active responders.
	4. Write notes on three experiments where the criteria of effectiveness of lectures is the stimulation of student thought.	4. Accept that to achieve affective objectives in a lecture the lecturer must inspire the audience with his own enthusiasm and capture their imagination.
		5. Appreciate that lectures can be used successfully to achieve lower order cognitive objectives particularly if large audiences are involved.

8.

(TASK C.1.2) THE LECTURE. SHEET 2.

PSYCHOMOTOR DOMAIN Performance/Skills	COGNITIVE DOMAIN Knowledge/Understanding	AFFECTIVE DOMAIN Attitudes/Feeling
	5. List the factors that affect the acquisition of information:- 5.1 - memory 5.2 - attention 5.3 - motivation	
	6. Write notes on the factors affecting the recall of information:- 6.1 - structural changes in the brain 6.2 - common experience 6.3 - limit to the number of items memorised 6.4 - methods of association 6.5 - factors causing forgetting 6.6 - factors aiding memory - meaningfulness - whole or part learning - organisation - repetition - feedback	
	7. Categorise and understand the importance of motivation of an audience, and write notes on the factors stated below that motivate people:- 7.1 - the desire for relevance 7.2 - curiosity 7.3 - enthusiasm from the lecturer 8.4 - the need for social interaction 8.5 - achievement and fear 8.6 - activity and esteem	6. Develop a sense of empath towards his audience.

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(TASK C.1.2) THE LECTURE. SHEET 3.

PSYCHOMOTOR DOMAIN Performance/Skills	COGNITIVE DOMAIN Knowledge/Understanding	AFFECTIVE DOMAIN Attitudes/Feeling
	8. Explain the decrement in attention of the audience during the course of a lecture and its direct relationship to the length of lecturing time.	
2. Draw up a rough lecture plan	9. Write notes on the following steps that are necessary when making a rough preparation of a lecture:- 9.1 - writing the lectures objectives 9.2 - deciding on suitable teaching methods 9.3 - selecting appropriate audiovisual aids 9.4 - deciding on the key points and the organisation of subject matter 9.5 - deciding on the length of the lecture 9.6 - preparing the evaluation.	
3. Demonstrate skill in the following:- 3.1 - operating slide projectors 3.2 - operating an overhead projector 3.3 - making a fair, easily understood graphic blackboard lay-out 3.4 - producing a fairly well designed and laid out overhead projector slide.	10. Understand the value of the following techniques when delivering a lecture:- 10.1 - statement of the organisation of the lecture at the beginning by an explanation how the objectives are to be obtained 10.2 - itemization of each point 10.3 - reinforcement of points by use of planned blackboard build up and overhead projector and 35mm slides 10.4 - re-expression of points in another way to facilitate comprehension 10.5 - elaboration 10.6 - recapitulation and restatement	7. Incorporate the princip of enrichment into his lectures by the use of audiovisual aids.

PSYCHOMOTOR DOMAIN Performance/Skills	COGNITIVE DOMAIN Knowledge/Understanding	AFFECTIVE DOMAIN Attitudes/Feeling

10.7 - importance of 'feedback' to allow the lecturer to know that he has got his point across, and whether an objective is obtained

10.8 - utilisation of handouts - their purpose lay-out, timing, availability and means of ensuring their use.

11. Write notes on the common difficulties, listed below, encountered in giving a lecture:-

11.1 - use of inappropriate teaching methods

11.2 - lecturing at the intellectual and technical level of the audience

11.3 - consequences of going too fast

11.4 - problems of large audiences

11.5 - nervousness of the lecturer

11.6 - audibility

11.7 fluency

11.8 - general movements of the lecturer whilst lecturing

1.5.2. PROGRAMME IMPLEMENTATION.
(TASK C1.2) TEACHING SMALL GROUPS. SHEET 1.

PSYCHOMOTOR DOMAIN	COGNITIVE DOMAIN	AFFECTIVE DOMAIN
After completing the course the EHO student will be able to:-		
1. Lead the discussions in a small group in such a manner as to achieve a measure of attitude change. as demonstrated by a verbal commitment from the participants to adopt healthful environmental practices or actions.	1. List from memory the following facts about small group teaching:- 1.1 the leader does not have the main channel of communication with his audience 1.2 the participants all talk to each other 1.3 what each participant learns from the discussion depends on what information he extracts from the discussion and each participant does not extract the same information 1.4 group learning is a longer process than learning in the lecture situation. 2. Know that as the group leader is important to articulate clear goals and gain agreement from all participants that these are worth pursuing. 3. Know that the interpretation of a film or slide shown to the group is more effective if given by the participants and not the leader. If a critical incident is missed the leader may replay it and ask further questions until the participants themselves see its significance.	1. Appreciate that the group situation is effective for changing attitudes in the participants, and that the important aspects of group work are in the knowledge ar attitudes areas. 2. Accept that if the participants can be persuaded by discussion to say that they will try to adopt new practices about a third will do so, whilst in the lecture situation where there is no commitment there is often no effect. 3. Accept that an attitude chang in participants is normally followed by a behavioural change. 4. Appreciate that it is important for participants to verbalise a commitment because, if they then do not go thrcugh with it, they will experience some degree of dissonance.

1.5.3. (TASK C1.2) PROGRAMME IMPLEMENTATION - CLASSROOM TEACHING IN SCHOOLS. SHEET. 1.

After completing the course the EHO student will be able to:-

PSYCHOMOTOR DOMAIN

1. Conduct teaching sessions in school classrooms to pupils from the age of nine onwards, in such a manner as to communicate effectively simple environmental health facts and principles and specific requirements for pupil participation in environmental health community programmes, where appropriate.

COGNITIVE DOMAIN

1. Describe and write notes on the following facts concerning teaching in schools:- (Dunswick H. and Davis C. 1976)
   - 1.1 information given to pupils must be understood, remembered, absorbed and evaluated by them before there is any chance of their attitudes or behaviour regarding environmental health being influenced
   - 1.2 several teaching approaches should be used, not simply "chalk and talk" (see analysis of audio-visual aids)
   - 1.3 teaching must be careful and clear with frequent recapitulation and some key information reiterated in handouts on which class discussion in question and answer form can be based
   - 1.4 the importance of integrated practical experience of the environment by organised observational field visits should be borne in mind.
2. Bear in mind the following facts concerning class management and school organisation:-
   - 2.1 the importance of having a knowledge of the school regulations and of such matters as courtesy observed between staff and pupils, the system of rewards and sanctions, etc.

AFFECTIVE DOMAIN

1. Accept the unique contribution of health education to children in influencing them to adopt lifelong healthful attitudes, values and routines.
2. Accept that environmental health education in schools requires special qualities and skills and that not all E.H.Officers who express a desire to do this work will have success in communicating with children.

(TASK C1.2) PROGRAMME IMPLEMENTATION - CLASSROOM TEACHING IN SCHOOLS. SHEET 2.

PSYCHOMOTOR DOMAIN	COGNITIVE DOMAIN	AFFECTIVE DOMAIN
	2.2 the importance of being consistent and firm concerning work and behaviour, not challenging little misdemeanors but not allowing activity in the classroom unconnected with the lesson in hand	
	2.3 knowing that with children there are many factors which unsettle a class and many small incidents will easily upset concentration - fatigue, hunger just before meal times, excitement are also important influences.	3. Appreciate that the school classroom is no place for miniature lectures as children are not miniature adults and have amongst other factors a far more limited span of attention.
	2.4 realising that to gain class involvement it is a good technique to ask individual pupil's assistance, but that different pupils should be used, with the troublesome or less able not left out, as the class sees this invitation to assist as the teacher granting a favour.	4. Accept that some children, because of temperament or background, are careless, chattering, thoughtless or apathetic, and that some have standards of work deliberately low because of lack of respect for education or for teachers in general.
	2.5 giving praise wherever possible as children love to be praised, but not insincere praise for poor work as children quickly see through this.	5. Understand that though when inexperienced in classroom teaching the presence of a member of the school teaching staff may be unwelcome to the EHC, this presence can be very valuable in many of the areas covered in this analysis.
	2.6 the importance of the need to show courtesy that indicates respect for the feelings of each pupil.	
	2.7 remembering that the young have a need for physical movement and fidgeting may be a polite manifestation of this need.	

1.5.4.
(TASK C1.3) PROGRAMME IMPLEMENTATION - FACE-TO-FACE DISCUSSIONS. SHEET 1.

PSYCHOMOTOR DOMAIN	COGNITIVE DOMAIN	AFFECTIVE DOMAIN
After completing the course the EHO student will be able to:-		
1. Demonstrate the ability to counsel informally, on environmental matters, individuals and families at their homes, work places or at municipality offices.	1. Write notes on the following facts concerning counselling:- (The Standing Conference for the Advancement of Counselling)	1. Accept that the professional EHO must develop a concern for the people with whom he is dealing.
1.1 Obtain a verbal commitment from individuals and families counselled that they accept and will, if applicable, act on the points raised.	1.1 - counselling is a way of helping people to help themselves through their own actions	2. Appreciate that it is unethical to counsel a person and leave him without the means to translate any attitude change that may have been achieved into a behavioura change (continued support with technical follow-up as an example would be necessary in some circumstances.)
	1.2 - counselling has been said to consist of listening, understanding, accepting and to communicating this understanding to those needing advice and help in environmental matters so that they are enabled to accept and come to terms with their difficulties using their own resources.	
	2. List the following aspects of non-verbal communication essential if he is to develop a successful technique when carrying out face-to-face informal counselling:-	
	2.1 Positioning of a client at the side of the person giving the advice tends to make the discussions easier than if placed opposite.	
	2.2 Observation of the face of the person being counselled - important as it gives most non-verbal cues to such emotions as happiness, disgust, anger, sadness.	
	2.3 Observation of the hands - important again for non-verbal cues, for example a clenched fist can portray anger.	
	2.4 Observation of head positions and movements which convey limited emotions.	

(TASK C1.3) PROGRAMME IMPLEMENTATION - FACE-TO-FACE DISCUSSIONS. SHEET 2.

PSYCHOMOTOR DOMAIN	COGNITIVE DOMAIN	AFFECTIVE DOMAIN
	2.5 Looking can convey a great deal, especially with regard to the length of the glance, looking away and length of eye contact.	
	2.6 Speech at a non-verbal level can convey emotion by tone, timing and pitch.	
	2.7 Cultural differences are important and must be taken into account; in some cultures anger is not expressed.	

1.5.5.

(TASK C.2.2) PROGRAMME IMPLEMENTATION - METHODS-LEARNING-RESOURCES. SHEET 1.

After completing the ocurse the EHO student will be able to:-

PSYCHOMOTOR DOMAIN

1. Select, from the available stock, the appropriate learning resources that will (a) translate into concrete form the abstract material to be communicated and (b) be most appropriate for the characteristics of the target population in question.

2. Operate, or use effectively, during the course of a lecture, group or classroom teaching etc., the following devices:-

   - 35mm slide projector
   - 35mm film strips
   - overhead projector
   - 16mm projector
   - 8mm loop projector
   - flannelgraph.

COGNITIVE DOMAIN

1. Know that the term audiovisual aids is being replaced by such alternative terms as "educational technology", "resources for learning" and "curriculum resources".(Tones,B.K. 1976(b))

2. Interpret the developments mentioned in 1.above as a change in the role of the teacher from a didactic figure having a finite body of knowledge or skills to transmit to someone who promotes learning by various means, and that it is the learner who is now "spotlighted".

3. List the following facts concerning the use of learning resources:-

   - United Nations Industrial Development Organisation stated in 1975 that the following percentage of information is typically retained:-

     10% of what is read
     20% of what is heard
     30% of what is seen
     50% of what is seen and heard
     70% of what is seen, heard and discussed

     in general the use of audiovisual aids reduces learning time by 40%

   - the aphorism "I hear and I forget, I see and I remember, I do and I understand".

AFFECTIVE DOMAIN

1. Accept that the good teacher will use audio-visual devices to transmit information an skills more effectively in his didactic role an that these techniques will greatly assist the E.H.Officer to communicate with his audience.

2. Accept that in the use of learning resources it must not be assumed that the teacher's (in this case the E.H.Officer) perception is the same as the learners.

3. Appreciate that the message to communicate is by far more important than the devices and techniques used in learning resources which can on some exert a strong appeal.

PSYCHOMOTOR DOMAIN

COGNITIVE DOMAIN

AFFECTIVE DOMAIN

4. Write notes on the underlying principle of the use of learning resources in that abstract material is translated into a more easily assimilated concrete form.

5. List the following points concerning the target population when the use of learning resources is considered:-

   5.1 young children cannot handle abstract material

   5.2 unintelligent adults faced with new knowledge and ideas are in the same position as young children

   5.3 account should be taken of the target group's age, intelligence, previous acquired knowledge and experience, motivation and attitudes.

6. List the following facts to be taken into account when selecting resources:-

   6.1 size of audience

   6.2 audience participation such as active responding

   6.3 quality of the graphics

   6.4 time and sequence of the material

   6.5 affective and skills suitability

   6.6 practical constraints such as readily obtainable, re-usability, cost, controllability, versatility and back-up facilities such as electricity, black out, etc.

1.5.6.

PROGRAMME IMPLEMENTATION (TASK C.1.1.) DRAFTING OF PRESS RELEASES. SHEET 1.

PSYCHOMOTOR DOMAIN	COGNITIVE DOMAIN	AFFECTIVE DOMAIN
After completing the course the student EHO will be able to:-		
1. Draft a press release that is:- 1.1 acceptable by the press through its news worthiness, economy of words and the simple direct content of the technical message. 1.2 capable of communicating knowledge to the public in an efficient manner through being drafted in a style that attracts and holds the readers' attention.	1. Write notes on the following aspects of the format and layout of a press release:- 1.1 the use of headed paper that strikes[1] the eye of the editor in a busy office and lends authority to the subject matter 1.2 the use of double spacing allowing for editoring between the lines without complete re-writing 1.3 the limiting of the text whenever possible to one side of a quarto sheet. 2. List the following concepts applicable to the writing of a press release:- 2.1 All major points must be made in the introduction, the remainder of the text to consist of developments of these points 2.2 the basic principle to adopt is that writing a press release is similar to the techniques used in briefing someone on a subject. 2.3 the first paragraph should contain all the major points of the message whilst the rest of the text should only develop these points	1. Accept that the best way to draft a press release is by imagining that he is a newspaper man given the assignment to write the release for his paper. 2. Accept that the newspaper editor, or radio news-producer, is primarily interested in the news-worthiness of the content of the press release.

[1] Mr. N. Jackson - Regional Information Officer - Regional Health Authority.

PROGRAMME IMPLEMENTATION (TASK C.1.1.) DRAFTING OF PRESS RELEASES. SHEET 2.

PSYCHOMOTOR DOMAIN	COGNITIVE DOMAIN	AFFECTIVE DOMAIN
	2.4. the first paragraph must attract and interest the reader by the use, if appropriate, of simple statistics on the incidence of disease etc. phrased in a startling manner 2.5. the entire text to be drafted in such a way that it can be accepted by the editor without re-writing 2.6. the technical terms in the message not to be incorporated into the text of the first paragraph, and when used to be explained. 2.7. the name and telephone number of the person issuing the release to be given to permit editors to quickly obtain additional information, photographs etc. if required. 3. Understand that the timing of the issuing of the release is important, e.g. papers published daily should not publish several days before weekly papers and radio broadcasts should be made on the same day as newspaper publication or the release will not be newsworthy to all the media.	3. Accept that a press release has a greater chance of being chosen for publication if it is so worded that only minimal editing has to be carried out by the editor before its use. 4. Appreciate that in order to save space an editor may cut out paragraphs of the text, and that if the lower paragraphs are eliminated the essential message content must remain in the first paragraphs. 5. Accept that the aim of a press release is to inform a large number of people through a short message specific knowledge in the expectation of either influencing their behaviour or inspiring their confidence in your service.

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PROGRAMME IMPLEMENTATION (TASK C.1.1.) RADIO AND TELEVISION BROADCASTING. SHEET 1.

PSYCHOMOTOR DOMAIN

After completing the course the student EHO will be able to:-

1. Appear on radio or television either to give a talk or in an interview situation, and successfully convey a message concerning environmental health whilst gaining credibility in the publics eyes as a capable professional person.

COGNITIVE DOMAIN

1. List and understand the three basic personal qualities necessary if he is to make a success of a radio or television talk or interview:
   - knowledge of the subject
   - being yourself
   - being determined to put over what you wish to put over.
2. List the following desirable qualities that he should convey when broadcasting or appearing on television:
   - calmness
   - pleasantness
   - courteousness
   - humour
3. Understand that during an interview he should not be passive but determined to convey his message without being offensive.
4. Know that during a television appearance it is preferable not to posture or make facial expressions.

AFFECTIVE DOMAIN

1. Accept that prior to accepting an assignment on radio or television the specific areas to be covered must be clearly defined.
2. Appreciate that to achieve credibility it is important to have a detailed knowledge of the specific areas to be covered.
3. Accept that there is no acting ability or specific techniques needed when appearing on television or broadcasting, and that the best practice is to be yourself.
4. Be aware that questions of a political nature should be treated with care and accept that if such matters do not concern him he must say so.
5. Accept that it is important to ascertain that he has the authority to represent his organisation or employers before appearing.

TASK C2.2. PORGRAMME IMPLEMENTION METHODS - FILMS.

After completing the course the student EHO will be able to:-

PSYCHOMOTOR DOMAIN

1. Select films the subject matter of which are compatible with and complementary to the aims of the programme and whose technical aspects are satisfactory.

COGNITIVE DOMAIN

1. Analyse critically the content of films in relation to specific environmental educational programmes, and list their following aspects, any one of which if not compatible may preclude the film from selection:-
   - accuracy of information
   - content appropriate to the culture of the audience if film is of foreign make
   - freedom from bias
   - likelihood of film achieving its stated aim
   - up-to-dateness
   - visual content enhances the message
   - no possibility of giving offence to racial minorities or sub-culture groups in target population
   - vocabulary suitable for audience
   - existence of unsuitable advertising matter
   - handout (if any) suitable for audience
   - length of film.

2. List the following technical aspects of a film, and understand that the impact of the film on the audience will be considerably lessened if any one, or a combination of, these points are of a low standard:-
   - print quality
   - colour definition
   - overall visual appeal
   - sound track audibility
   - recording quality
   - synchronisation.

AFFECTIVE DOMAIN

1. Accept that the film has only a limited use in environmental health educational programmes and that though it has some u for cognitive input with specific audiences (e.g. food handlers) its likelihood in bringing about attitude chang is low.

TASK C2.2. PROGRAMME IMPLEMENTATION METHODS - POSTERS. SHEET 1.

After completing the course the student EHO will be able to:-

PSYCHOMOTOR DOMAIN

1. Make a critical assessment of a poster with regard to its value in communicating specific messages to the target population in an environmental health education programme.

2. Select from a series of layouts made by professional poster designers the poster most likely to be effective in contributing to the achievement of the programme aims.

COGNITIVE DOMAIN

1. Write notes on the following facts about posters:-[1]

   1.1 poster designing is an art that requires inspiratory skill, technique and special knowledge

   1.2 poster designers must ideally aim to give pictorial expression to the message concerned in such a way that it may be instantly remembered and stored in the minds of all who see it

   1.3 posters should attract attention to themselves by their design, wording, originality and challenge

   1.4 posters should have as their main facets idea, colour, form and lettering and the skilful marrying of these should reinforce the other, subsequently presenting on a hoarding the appeal and effect required

   1.5 posters are commonly made in two sizes, Crown (15 x 20 inches) and Double Crown (30 x 20 inches)

   1.6 posters have each their own set of limitations governed by market appeal, printing, cost method adopted, size and location of site

   1.7 posters are affective with iconic devices, and their emotional appeal concerning humour, sentiment and drama is very important

AFFECTIVE DOMAIN

1. Accept the considerable limitations of posters in effectively contributing to t aims of the programme.

2. Appreciate that research has shown that it is highly unlike that anyone will do anything after reading a poster, excep that if it conveys informatio where there is already a need for it the poster can act as a trigger for action.

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[1] Keith Tones - University of Leeds Institute of Education, 1974.

TASK C2.2. PROGRAMME IMPLE..ENTATION METHODS - POSTERS. SHEET 2.

PSYCHOMOTOR DOMAIN	COGNITIVE DOMAIN	AFFECTIVE DOMAIN
	1.8 posters that are unusual and have human appeal (e.g. man's love of children and animals) incorporated are most likely to be effective	-
	1.9 posters should have lettering that complies with the following consideration - character of the letter to be used, readability, arrangement and that lettering alone can be the best solution for putting over a message quickly on a fast-moving van or bus.	

1.6. PROGRAMME EVALUATION (TASK D.1). SHEET 1.

After completing the course the student will be able to:-

PSYCHOMOTOR DOMAIN

1. Carry out a pre-test of the target population to assess the need for a health education approach to benefit environmental health by behavioural change, utilising either the written questionnaire approach or the survey technique based on the proforma given in the annex using his professional skills of inspection and observation.

2. Design a proforma for environmental health education survey and evaluation based on the model given in annex.

COGNITIVE DOMAIN

1. Write notes on the following aspects of evaluation:-
   - 1.1 that it is made easier when precise objectives for the programme have been written
   - 1.2 that final evaluation is based on to what extent these objectives have been attained
   - 1.3 that in on-going evaluation errors can be corrected before they become serious, and, if thought necessary, alternative methods can be introduced
   - 1.4 that in on-going evaluation correct[1] responses should be quickly reinforced and incorrect ones put right as soon as possible.

2. Understand, and write notes on the following aspects of questionnaire design that may be used to indicate entry behaviour of the target population and for final evaluation in the systems approach orientated programme:-
   - 2.1 Questions can be asked by an interviewer, or sent in written form through the post
   - 2.2 the responses can be open, asking for opinions, or closed - Yes-No and Don't Know type, known as pre-coded.

AFFECTIVE DOMAIN

1. Accept that an important procedure in the systems orientated environmental health education programme is evaluation in its pre-test form before commencing, in its on-going form during the programme, and in its final or post-test form after completion.

[1] Dr.W.D.Clarke BLAT Centre - Curriculum Evaluation 1977

PSYCHOMOTOR DOMAIN	COGNITIVE DOMAIN	AFFECTIVE DOMAIN
	2.3 to avoid communication problems lay out should be unambiguous and clear, with sign-posting (guiding to other sections of the questionnaire) and filters, from general to specific points) and contain face-saving devices and use simple language 2.4 presuming and personalised questions should be avoided, and embarrassing and sensitive issues should be left until the end with the use of the third person, question order may affect responses.	
3. Design a questionnaire and use the evaluation of the results to form the objective of a health education approach. 4. Carry out an evaluation of an environmental health educational programme of both the on-going and final type, and apply the results to correct or improve the programme in progress and to evaluate the effectiveness after the programme has been completed. (See model proforma given in annex).	3. List the following information given by Gallup (1947)[1] concerning question design:- 3.1 check whether informant has any general awareness of issue - any thoughts on the subject at all 3.2 check general opinions on issue with use of open-ended question 3.3 check specific aspects of issue with use of pre-coded items 3.4 check reasons for viewpoints 3.5 check how strongly these are held.	

[1] Gallups Quintamensional Plan of Question Design (1947)

ANNEX TO PROGRAMME EVALUATION (TASK D.1)

ENVIRONMENTAL HEALTH EDUCATION - PRE-TEST AND ON-GOING EVALUATION SURVEY FORM (1)

ACTIVITY: FOOD HANDLERS - SAUSAGE FACTORY
ADDRESS: 15 KINGS STREET.

PARAMETERS:	Previous Relevant Knowledge of Food Hygiene Practises	General Hygienic Standard of Premises and Equipment	Level of Personal Hygiene	Level of Hygienic Practises in Food Handling	Total	Average
Evaluation: 1.Pre-Test Date:15.1.77	2/10	3/10	3/10	2/10	10/40	2.5
Evaluation: 2.On-going Date:17.2.77		8/10	7/10	9/10		
Evaluation: 3.On-going Date:20.3.77		7/10	6/10	8/10	21/30	7
Evaluation: 4.On-going Date:10.4.77		6/10	4/10	7/10	17/30	5.6
Evaluation: 5.On-going Date:20.5.77		6/10	4/10	6/10	6/10	5
Evaluation: 6.On-going Date:30.6.77		8/10	6/10	8/10	22/10	7

Dates of Health Education Intervention 30.1.77 and 25.5.77.

Methods Employed - Lecture with film and practical demonstration.

(1) Proforma based on Management by objectives and Environmental Health - Journal of Environmental Health Officers Association.Feb.1977, Volume 85. No.2.

Notes

1. Parameters, or criteria, may be decided by the E.H.O. alone or in collaboration with his colleagues and depending on the activity.

2. Improvements, Overtime. The assessments should be made by the same person or the same groups of persons collaborating.

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